Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2141001 **Date:13/05/2019**

Subject Name: Microprocessor and Interfacing

Time:02:30 PM TO 05:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Draw and explain Flag register of 8085 Microprocessor.	**03**
	(b)	Explain de-multiplexing of lower order address bus and data bus.	**04**
	(c)	List out different machine cycles of 8085 microprocessor. Draw and explain any two in detail.	**07**
Q.2	**(a)**	Draw and explain the bus structure of 8085 microprocessor.	**03**
	(b)	Draw and explain schematic to generate Read/Write control signals for memory and I/O.	**04**
	(c)	Explain the following instructions of 8085 microprocessor. 1) RLC 2) STC 3) CPI 4) RET 5) PUSH 6) XRA 7) XCHG	**07**
		OR	
	(c)	Explain the following instructions of 8085 microprocessor. 1) RAL 2) CMP 3) LXI 4) CMA 5) POP 6) JMP 7) CALL	**07**
Q.3	**(a)**	List out Microprocessor initiated operations, internal operations and peripheral or externally initiated operations.	**03**
	(b)	Design a delay loop to generate delay of 200msec. Assume clock frequency of 8085 microprocessor is 2MHz.	**04**
	(c)	Draw a circuit to interface 4KB ROM and 2KB RAM using 3 to 8 line decoder. Also compare Memory mapped I/O and I/O mapped I/O.	**07**
		OR	
Q.3	**(a)**	MVI B, FFH LOOP: DCR B JNZ LOOP Calculate the total time delay (or time taken) to execute the above program. Consider clock frequency of the system as 2 MHz.	**03**
	(b)	List out and explain in brief Restart Instructions (RST0 to RST7) used with INTR interrupt.	**04**
	(c)	Design a circuit to interface one 2KB EPROM and two 4KB RAMs. Also compare Partial Decoding and Absolute Decoding.	**07**
Q.4	**(a)**	Explain SIM and RIM instructions.	**03**
	(b)	Draw timing diagram of LDA instruction.	**04**
	(c)	Write a program to find negative numbers from the given array of numbers. Store all negative numbers and positive numbers from 2050H and 2060H onwards respectively. Store the count of each on C000H and C001H.	**07**
		OR	
Q.4	**(a)**	Explain the concept of stack memory with an example.	**03**

	(b)	Compare different types of Interrupts in 8085.	**04**
	(c)	Write a program to arrange given numbers in ascending order.	**07**

Q.5	**(a)**	Draw architecture of 8086 microprocessor.	**03**
	(b)	Draw and explain 8259 Programmable Interrupt Controller IC.	**04**
	(c)	Draw and explain block diagram, control word and modes of 8255 Programmable Peripheral Interface IC.	**07**

OR

Q.5	**(a)**	Give an overview of Advance microprocessors.	**03**
	(b)	Explain Addressing modes of 8086 microprocessor.	**04**
	(c)	Draw and explain Programmable Interval Timer IC 8253 in detail.	**07**

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